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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/549,302	09/15/2005	Michael Hagen	AM100485	5958

38199 7590 12/18/2007

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EXAMINER	
HINES, JANA A	

ART UNIT	PAPER NUMBER
1645	

MAIL DATE	DELIVERY MODE
12/18/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/549,302	HAGEN, MICHAEL	
	Examiner	Art Unit	
	Ja-Na Hines	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *1* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 September 2007*.

2a)☐ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-101* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-101* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

A. Claim1-11 and 52-62 are drawn to an immunogenic composition comprising a cholera holotoxin (CT) and an antigen covalently associated with the CT, wherein the CT comprises an A subunit (CT-A) having a mutation of at least amino acid residue 29 of SEQ ID NO:2, wherein the mutation is not an aspartic acid, wherein the CT increases immunogenicity of the antigen and a method of immunizing a mammalian host, classified in class 424, subclass 261.1.

B. Claims 12-34 and 63-85 are drawn to an immunogenic composition comprising a CT and an antigen covalently associated with the CT, wherein the CT comprises one or more mutations in the CT-A, wherein the CT increases immunogenicity of the antigen and a method of immunizing a mammalian host, classified in class 424, subclass 236.1.

C. Claims 12-34 and 63-85 are drawn to an immunogenic composition comprising a CT and an antigen covalently associated with the CT, wherein the CT comprises one or more mutations in the CT-A, wherein the CT increases immunogenicity of the antigen and a method of immunizing a mammalian host, classified in class 424, subclass 236.1.

D. Claims 12-34 and 63-85 are drawn to an immunogenic composition comprising a CT and an antigen covalently associated with the CT, wherein the

CT comprises one or more mutations in the CT-A, wherein the CT increases immunogenicity of the antigen and a method of immunizing a mammalian host, classified in class 424, subclass 236.1.

E. Claims 12-34 and 63-85 are drawn to an immunogenic composition comprising a CT and an antigen covalently associated with the CT, wherein the CT comprises one or more mutations in the CT-A, wherein the CT increases immunogenicity of the antigen and a method of immunizing a mammalian host, classified in class 424, subclass 236.1.

F. Claims 12-18, 29-34, 63-69 and 80-85 are drawn to an immunogenic composition comprising a CT and an antigen covalently associated with the CT, wherein the CT comprises one or more mutations in the CT-A, wherein the CT increases immunogenicity of the antigen, and wherein the mutation is at Glu-29 and a method of immunizing a mammalian host, classified in class 424, subclass 236.1.

G. Claims 12-16, 19, 21, 29-34, 63-67, 70, 72 and 80-85 are drawn to an immunogenic composition comprising a CT and an antigen covalently associated with the CT, wherein the CT comprises one or more mutations in the CT-A, wherein the mutation is at Ile-16, Ser-68 and wherein the CT increases immunogenicity of the antigen and a method of immunizing a mammalian host, classified in class 424, subclass 236.1.

H. Claims 12-16, 20, 22, 34 and 63-67, 71, 73 and 80-85 are drawn to an immunogenic composition comprising a CT and an antigen covalently associated with the CT, wherein the CT comprises one or more mutations in the CT-A, wherein the mutation is at Ser-68 and Val-72 and wherein the CT increases immunogenicity of the antigen and a method of immunizing a mammalian host, classified in class 424, subclass 236.1.

I. Claims 12-15, 23, 29-34,63-66, 74 and 80-85 are drawn to an immunogenic composition comprising a CT and an antigen covalently associated with the CT, wherein the CT comprises one or more mutations in the CT-A, wherein the mutation is an insertion at amino acid position 49 and wherein the CT increases immunogenicity of the antigen and a method of immunizing a mammalian host, classified in class 424, subclass 236.1.

J. Claims 12-15, 24, 29-34,63-66, 75 and 80-85 are drawn to an immunogenic composition comprising a CT and an antigen covalently associated with the CT, wherein the CT comprises one or more mutations in the CT-A, wherein the mutation is an insertion at amino acid positions 36 and 37 and wherein the CT increases immunogenicity of the antigen and a method of immunizing a mammalian host, classified in class 424, subclass 236.1.

K. Claims 12-15, 25, 28-34,63-66, 76 and 79-85 are drawn to an immunogenic composition comprising a CT and an antigen covalently associated with the CT, wherein the CT comprises one or more mutations in the CT-A,

wherein the mutation is an substitution at amino acid position 30, an insertion at amino acid positions 31 and 32 and wherein the CT increases immunogenicity of the antigen and a method of immunizing a mammalian host, classified in class 424, subclass 236.1.

L. Claims 12-15, 26, 29-34,63-66, 77 and 80-85 are drawn to an immunogenic composition comprising a CT and an antigen covalently associated with the CT, wherein the CT comprises one or more mutations in the CT-A, wherein the mutation is an insertion at 49 between amino acids 48 and 49 and wherein the CT increases immunogenicity of the antigen and a method of immunizing a mammalian host, classified in class 424, subclass 236.1.

M. Claims 12-15, 27, 29-34,63-66, 78 and 80-85 are drawn to an immunogenic composition comprising a CT and an antigen covalently associated with the CT, wherein the CT comprises one or more mutations in the CT-A, wherein the glycine and praline are inserted in the amino acids positions 36 and 37 between the wild-type positions 35 and 35 and wherein the CT increases immunogenicity of the antigen and a method of immunizing a mammalian host, classified in class 424, subclass 236.1.

N. Claims 35-43 and 86-94 are drawn to an immunogenic composition comprising an *Escherichia coli* heat labile (LT) and an antigen covalently associated with the LT, wherein the LT increases immunogenicity of the antigen

and a method of immunizing a mammalian host, classified in class 424, subclass 241.1.

O. Claims 44-51 and 95-101 are drawn to an immunogenic composition comprising a pertussis toxin (PT) and an antigen covalently associated with the PT, wherein the PT increases immunogenicity of the antigen and a method of immunizing a mammalian host, classified in class 424, subclass 240.1.

2. The inventions are distinct, each from the other because of the following reasons:

Inventions A and any one of B-O are directed to related distinct products. The related inventions are distinct if the (1) the inventions as claimed are either not capable of use together or can have a materially different design, mode of operation, function, or effect; (2) the inventions do not overlap in scope, i.e., are mutually exclusive; and (3) the inventions as claimed are not obvious variants. See MPEP § 806.05(j). In the instant case, Group O is drawn to an immunogenic composition comprising a pertussis toxin, which is unlike the others groups. Group N to an immunogenic composition comprising an *Escherichia coli* heat labile toxin, thereby requiring a different toxin, then the toxins of groups A thru M and O. The methods are distinct each from the other because they have different method steps or require different toxins. Consequently, each group is distinct from the other, since the inventions are not capable of use together. Furthermore, the inventions as claimed do not encompass overlapping subject matter and there is nothing of record to show them to be obvious variants.

With respect to groups B thru M, the products are patentably distinct, thus the inventions do not overlap in scope and are mutually exclusive. Claims 16-28 and 67-79 are drawn to a plurality of disclosed patentably distinct polypeptides comprising materially different amino acid sequences. The separate polypeptides bear distinct structural or biochemical properties as evidenced by the distinct and separate point mutations. **Therefore, each disclosed patentably distinct mutation is considered a separate invention.**

Should applicant traverse on the ground that the inventions are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing which inventions are obvious variants of each other or clearly admit on the record which inventions are obvious variants of each other. If the inventions are deemed obvious variants of each other, then if the examiner finds one of the inventions unpatentable over the prior art, the evidence submitted by applicant or admission of record by applicant may be used in a rejection under 35 U.S.C. §103(a) of the other inventions.

Searching the inventions of groups A and any of B thru O together would impose serious search burden. The inventions of any of groups A and any of B thru O have acquired a separate status in the art as shown by their different classifications. Moreover, in the instant case, the search for an immunogenic composition comprising a PT and an antigen covalently associated with the PT, wherein the PT increases immunogenicity of the antigen and a method of immunizing a mammalian host, is not coextensive with the other groups. Group O encompasses a different function and steps

not required for the search of groups A-N. In contrast, the search for group N would require a text search for an immunogenic composition comprising an *Escherichia coli* heat labile (LT) and an antigen covalently associated with the LT, wherein the LT increases immunogenicity of the antigen and a method of immunizing a mammalian host, and would not necessarily encompass a search of Group A. Moreover, group M which is drawn to an immunogenic composition comprising a CT and an antigen covalently associated with the CT, wherein the CT comprises one or more mutations in the CT-A, wherein the glycine and praline are inserted in the amino acids positions 36 and 37 between the wild-type positions 35 and 35 and wherein the CT increases immunogenicity of the antigen and a method of immunizing a mammalian host may be novel and unobvious in view of the required mutations and product and the same may not be true for group I.

3. Because these inventions are distinct for the reasons given above, and have acquired a separate status in the art as shown by their different classification, the search required for each group is not required for the other groups since each group requires a different non-patent literature search due to each group comprising different products and/or method steps, restriction for examination purposes as indicated is proper.

4. Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ja-Na Hines whose telephone number is 571-272-0859. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Shanon Foley, can be reached on 571-272-0898. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ja-Na Hines
December 3, 2007

MARK NAVARRO
PRIMARY EXAMINER